United States Department of Agriculture
Forest Service
Stanislaus National Forest
19777 Greenley Road
Sonora, CA 95370-5909
(209) 532-3671
FAX: (209) 533-1890

37.74848 -119.58424

February 11, 1993 5
(3420, Rept. No. C93-4)

Mr. Lorne West
Park Forester
Yosemite National Park
Yosemite, CA 95389

Dear Lorne:

This memo describes our activities and observations during my visit to Yosemite Valley on December 2, 1992. The time in Yosemite Park was part of a trip to collect mushrooms of the root disease fungus, Armillaria sp., for a research project. We stopped at the Superintendent's former residence because of your recollection that mushrooms had been present four years ago on black oaks behind the house.

Five California black oaks were examined and are identified on the enclosed map. The grass was removed from around the base of each oak, and a portable electric drill was used to probe around the root collar area. (The grass is kept green during the summer with sprinklers.) We followed one or two major lateral roots out about a foot from each tree and assessed their condition, looking for areas of dead bark and wood that might indicate the presence of a root decay fungus.

Tree #1. A 28.9" DBH (diameter at breast height), 70' tall oak approximately 20 feet from the southwest corner of the building. Two small Armillaria mushrooms were found at the base of the tree, but were not visible until the grass was removed. The bark and wood adjacent to these mushrooms were healthy, and it was not apparent what the mushrooms were using as a food base. All portions of the root collar and lateral roots examined were healthy. It appeared that the cambium along several vertical strips above the soil line had died a few years ago. Although bark was peeling away from these areas, healthy callus tissue was present underneath, and no evidence of decay was found. We could offer no explanation for the cause of the lesions. This tree leans toward the garage.

Tree #2. A 34.2" DBH tree that was 65 feet south of the former residence. There was a frost crack extending up 12 feet from the base of the tree and a small pocket of decay, 1.5 to 2 inches deep, was associated with the crack. The oak was about 60 feet tall.

Tree #3. A 36.3"DBH, 80' tall oak which is 5 feet southeast of the entrance ramp. Cracks were present in the bark but the cambium was healthy. A small section of decayed wood plus rhizomprphs of Armillaria sp. were found at the root collar. The decay was about 2 inches deep.

Trees #4/5. Two trees joined at the base and located 10 feet east of the ramp. Tree #4 was 29" DBH and 65' tall with a pronounced lean toward the ramp and residence. Tree #5 was 55.7" DBH, 80' tall and leaned away from the residence. A seam of callus separated the bases of these oaks. Trees that grow this close together may not have roots on the side that faces the adjacent tree. No other defects were found.

Conclusions/Recommendations

1. It is not clear what the Armillaria fungus is surviving on in this area. Normally we see mushrooms growing only from stumps, dead trees, or dead portions of trees. Two of the five oaks we examined had decay at the root collar, but the decay was not extensive.

2. Watering a lawn and allowing it to grow up to the base of natural/native oaks favors the development of root pathogens such as Armillaria. A common procedure in situations like this is to remove the sod for 2-3 feet away from the base of native oaks and to avoid watering the cleared area. This prevents creating a moist environment in which fungi thrive.

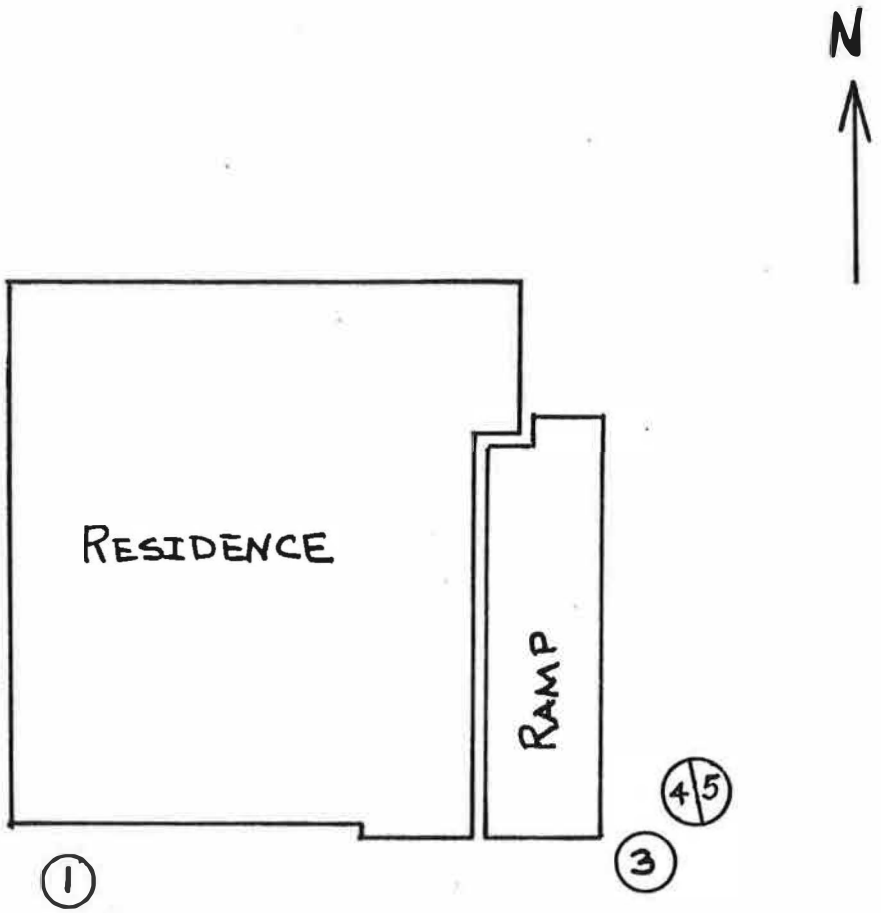
3 These five oaks should be monitored closely for any decline in health or vigor. Because our examination was done when the oak foliage was gone, a complete assessment of crown condition was not possible. We know a root disease organism is present but apparently not causing much injury at the present time. This could change in the future. Tree #4 is particularly precarious because of its lean over the building. You and your staff are familiar with options for mitigating tree hazards. One option that is not normally considered in the Park, but which could be appropriate for Tree #4, is installing a cable to support its weight and prevent a failure.

Sincerely,

John

JOHN PRONOS
Plant Pathologist

Enclosure



J. Pronos 2-10-93